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MS-AF
PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Mikael FURU et al.

Serial No.: 10/576,814

Filed: May 16, 2006

For: Spray Coating Unit and Method of Spray Coating

Examiner: EDWARDS, Laura E.
Group Art: 1713

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Commissioner for Patents
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AMENDMENT AFTER FINAL REJECTION

SIR:

Please amend the above-identified application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 4 of this paper.

LISTING OF CLAIMS:

The following listing of claims will replace all prior versions and listings of claims in the application:

1. (Currently amended) A spray coating unit for treating a moving paper or board web with a treating agent, the spray coating unit comprising:

an application chamber, through which the web to be treated is arranged to travel, the application chamber comprising an inlet opening for leading the web into the application chamber and an outlet opening for leading the web out of the application chamber;

at least one row of nozzles for spraying the treating agent on the surface of the web in the application chamber; and

~~spraying members~~ atomizing nozzles for spraying water ~~mist~~ spray of water drops into the application chamber, the sprayed water drops being at a temperature not higher than that of the application chamber.

2. (Currently amended) The spray coating unit of claim 1, wherein the ~~spraying members~~ are provided with members for atomizing water mist into atomizing nozzles spray water drops with an average drop size of no more than 150 μm .

3. (Currently amended) The spray coating unit of claim 1 wherein the ~~spraying members~~ atomizing nozzles are located in the vicinity of the inlet opening at least on one side of the web.

4. (Currently amended) The spray coating unit of claim 3, wherein the ~~spraying members~~ atomizing nozzles are located in the vicinity of the inlet opening on both sides of the web.

5. (Currently amended) The spray coating unit of claim 1, wherein the ~~spraying members~~ comprise nozzles that atomizing nozzles are ~~fitted~~ next to each other in the cross direction of the web.

6. (Withdrawn)

7. (Withdrawn)

8. (Withdrawn)

9. (Withdrawn)

10. (Currently amended) The spray coating unit of claim 1, wherein the ~~spraying members are provided with members for atomizing water mist into~~ atomizing nozzles spray water drops with an average drop size of no more than 50 μm .

11. (Currently amended) The spray coating unit of claim 2, wherein the ~~spraying members~~ atomizing nozzles are located in the vicinity of the inlet opening at least on one side of the web.

12. (Currently amended) The spray coating unit of claim 11, wherein the ~~spraying members~~ atomizing nozzles are located in the vicinity of the inlet opening on both sides of the web.

13. (Withdrawn)

14. (Withdrawn)

15. (Withdrawn)

REMARKS

Independent claim 1 is amended to recite that (1) the sprayed water drops are at a temperature not higher than that the application chamber, (2) the sprayed water is in the form of a spray of water drops, and (3) that the water drops are sprayed by atomizing nozzles.

Support for (1) the sprayed water drops being at a temperature not higher than that the application chamber is in the specification at page 3, lines 23-24. Support for (2) the sprayed water being in the form of water drops is in the specification at page 6, line 12 to page 7, line 6. Support for (3) the water drops being sprayed by atomizing nozzles is in claims 2 and 10 as originally filed and in the specification at page 6, line 12 to page 7, line 6. No new matter is added.

In the Office Action dated April 15, 2010, claims 1 and 3 were rejected under 35 U.S.C. § 102(b) as being anticipated by PCT Patent document WO 02/072953 (Nissinen). Dependent claims 2, 4, 5 and 10-12 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nissinen in view of U.S. Patent No. 3,88,965 (Garrett).

Nissinen discloses (page 14, lines 2 to 5) that moist air or steam is blown into the application chamber.

With respect to the limitation added to claim 1, that the sprayed water is at a temperature not higher than that the application chamber, as stated in the Amendment dated January 20, 2010 (page 5), the Specification states that using heated water, such as steam (as disclosed in Nissinen), has disadvantages:

“If steam is blown into the application chamber, the equipment must be provided with a steam generator, which increases the equipment and operation expenses of the coating unit. In addition, the steam increases the thermal stress of the application chamber, which in turn increases the surface temperatures of the application chamber and thus decreases the condensation of the mist of coating mixture on the surfaces.” (Specification, page 3, lines 3 to 7).

With respect to the limitation added to claim 1 that the sprayed water is in the form of water drops, as stated in the Amendment dated January 20, 2010 (page 5), the Specification states that using moist air (as disclosed in Nissinen) disadvantages:

“In solutions, wherein moist air is blown into the application chamber, the coating unit must be provided with an air humidifier, which increases the price of the equipment. Drops of coating mixture are also formed in the air nozzle, which drops may drip onto the surface of the web. Furthermore, the air blowing increases the pressure in the application chamber, whereby some mist of the

coating mix may leak into the machine room.” (Specification, page 2, line 29 to page 3, line 2).

A nozzle that sprays water drops (as recited in amended claim 1) is different than a nozzle that dispenses moist air or steam (as disclosed in Nissinen). A nozzle that sprays water drops must be capable of atomizing water into drops and spraying the drops, as recited in amended independent claim 1. A nozzle that dispenses moist air or steam is merely dispensing a gas, and such a nozzle cannot and does not atomize water into a spray of drops, as recited in amended independent claim 1.

Consequently, the structure recited in amended claim 1 is not disclosed in or suggested by either Nissinen alone, or Nissinen in view of Garrett.

For these reasons, claims 1 to 5 and 10 to 12 are patentable.

Entry of this Amendment and allowance of this application is respectfully requested.

It is believed that no fees or charges are required at this time in connection with the present application. However, if any fees or charges are required at this time, they may be charged to our Patent and Trademark Office Deposit Account No. 03-2412.

Respectfully submitted,
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